

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Daisuke YAHATA

Serial No.: 10/815,769

Filing Date: April 2, 2004

For: ALIPHATIC POLYESTER MULTI-
FILAMENT CRIMP YARN FOR A
CARPET, AND PRODUCTION
METHOD THEREOF

Examiner: C. A. Juska

Group Art Unit: 1794

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Osamu MITO, a citizen of Japan residing in Shiga, hereby declare under penalty of perjury as follows:

1. I have a Master's degree in Engineering, which was conferred upon me by the Graduate Kyushu University in 1998. I majored in Mechanical Engineering in the graduate school.
3. In 1998, I entered employment with Toray Industries, Inc, since then I have been an engineer in the Stable Fiber Technical Department (1998-2000), an engineer in the Textile Development Center (2000-2002), and an engineer in the Functional Materials and Products Development Center (2002-present). Accordingly, I have been engaged in the development of fiber-making processes and their application and I am skilled and am familiar with the arts of fiber-making processes, applications of fiber making processes, and the analysis of fibers and textiles.

2. I have read and am familiar with the instant application, the Official Action of August 13, 2008, and WO 00/65140 issued to Matsunaga *et al.* (hereinafter Matsunaga) (US 2003/0152743 is the English language equivalent of WO 00/65140.)

3. This declaration is provided to show that the one step drawing process described in Matsunaga produces a yarn that has different properties than a yarn produced using the two-step drawing process recited in claim 22 of the instant application.

4. I and/or persons under my direct supervision and control reproduced Example 1 of Matsunaga. The process of Example 1 was reproduced three times because Matsunaga does not disclose the drawing conditions. Accordingly, three separate drawing rates were tried. My preliminary experiments suggested that the most suitable total drawing ratio was around 2.5. A drawing ratio of less than 2.0 resulted in insufficient thread strength and a drawing ratio above 3.0 resulted in thread breakage. Accordingly, three drawing ratios that range from 2.0 to 3.0 were used. In addition, a Control that utilizes the claimed two-step drawing process was also reproduced. The resulting yarns were all tested using the measurement techniques described in the instant application. The attached table summarizes the results of these tests.

5. As shown in the Table, none of the three yarns produced according to the method of Matsunaga were able to produce a yarn with all the same desirable characteristics as the claimed process. Specifically, Cases 1 and 2 produced threads with breaking strengths outside the claimed range and it was impossible to produce a thread using the drawing rate of case 3.

6. These results show that the two-step drawing process recited in claim 22 produces a yarn with different characteristics than the one-step drawing process described in Matsunaga. Further, the yarn produced using the one-step drawing process described in Matsunaga does not have the claimed breaking strength recited in claim 22.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed at Shiga, Japan, this 14 day of January, 2009.

By: Osamu Mito
Osamu MITO

Table

Item	Unit	Matsunaga Example 1 / Case 1	Matsunaga Example 1 / Case 2	Matsunaga Example 1 / Case 3	Control (the invention takes this process)
		Single-step process of drawing process	Single-step process of drawing process	Single-step process of drawing process	Two-step process of drawing process
Total fineness for the multifilament crimped yarn	dectex	1430	1430	1430	1430
Number of filament	number	64	64	64	64
Fineness of the single yarn	dectex	22	22	22	22
First step / Second step / Total	Drawing rate	2.0 / - / 2.0	2.5 / - / 2.5	3.0 / - / 3.0	2.0 / 1.26 / 2.5
Breaking strength	cN/dectex	0.8	0.6	x (impossible to obtain a thread)	1.9
Crimp elongation rate after processed with boiling water	%	6.0	6.2	x (impossible to obtain a thread)	7.0
Manufacturing ability / spinning ability	-	○	Δ (carding)	x (impossible to obtain a thread)	◎
Tufting ability	-	◎	Δ (thread breaking)	x (impossible to obtain a thread)	◎

◎: excellent
○: good
Δ: poor
x: bad